ABSTRACT Improvements in, or Relating to, VDSL

Zipper is a time-synchronized frequency-division duplex implementation of discrete multi tone (DMT) modulation. Two communicating Zipper modems transmit DMT symbols simultaneously with a common clock. The Zipper scheme implies that every carrier, in the total set of carriers in the DMT signal, is exclusively chosen to be used for either the up-stream or the down-stream direction. When all transmitters are time synchronized, the near end cross-talk (NEXT) and near end echoes injected into the received signal are orthogonal to the desired signal.

The present invention provides s telecommunications transmission system using zipper and having at least two VDSL systems. Each of VDSL system comprises a pair of zipper modems communicating over a cable transmission path. The two VDSL systems employing a common cable. The telecommunications transmission system is adapted to:

- handle zipper transmissions transmitted over the common cable;
- at least partly mitigate NEXT; and
- permit transmissions in a first VDSL system which are asynchronous with transmissions in a second VDSL system.

